

## CURRICULUM VITAE



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**Position:** Professor

**Institution:** Seoul National University

**Location:** Seoul, South Korea

### Education:

#### University of California at Berkeley, CA

2000-2004     **Ph.D (Bioengineering)**, UCB/UCSF Joint Bioengineering Graduate Group  
BioPOEMS laboratory, Berkley Sensor and Actuator Center (BSAC)  
Adviser: Prof. Luke P. Lee  
Thesis: Micromachined Lens Scanning Confocal Microscope Array for Micro Total Analysis Systems  
Worked mainly on Bio/Optical MEMS for lab-on-a-chip systems

#### Seoul National University, Seoul, Korea

1998-2000     **MS (Medical Engineering)** Interdisciplinary program in medical engineering  
Adviser: Prof. Hee C. Kim  
Thesis: Electrooculogram(EOG) based Glasses Shaped Wireless Mouse for the Disabled  
Worked on hand-held medical instrumentation at Seoul National University Hospital working with medical doctors  
1994-1998     **BS (Electrical Engineering)**

### Representative Careers:

2010.11–present     **Founder & Scientific Advisor, Celeemics Inc.**, Seoul, Korea  
Founded and advising a lab spun-off company. Celeemics is developing high throughput gene synthesizer

- 2011.5 –present                      Founder & CEO, **Quanta Matrix Inc.**, Seoul, Korea
- Founded and serving as an interim CEO, QM is developing rapid antibiotic susceptibility test solution.
- 2006.8 – present                      **Professor, Department of Electrical Engineering, Seoul National University**, Korea
- Leading Biophotonics & Nanoengineering Laboratory (BINEL) to deliver technological innovations with basis on Nanofabrication, Photonics, and BioMEMS
- 2004.1 - 2006.7                      **Postdoctoral Fellow, Molecular Foundry, Lawrence Berkeley National Laboratory**, CA, USA
- Adviser: Jeffrey Bokor
- Research on various nanofabrication methods (ebeam, nanoimprint) for various nanoscientific problems including catalyst, nanomagnets, quantum computing, intra-cellular probes, and biological self-assembly
- CTO & Founder, SPS Microsystems**, Red Wood City, CA, USA
- Developed new MEMS laser projection display for cell phones
- 2002 summer                      **Visiting Researcher, Precision Biology Group, Intel, Corp.**, Santa Clara, CA, USA
- Developed porous silicon based SERS substrate for direct DNA sequencing

**Specialty & Present Interest:**

Single cell analysis, Single cell genomics, Single cell transcriptomics, Rapid Antimicrobial Susceptibility Test, High throughput screening

**Representative papers (up to 5):**

1. J. Choi, J. Yoo, M. Lee, E. Kim, J. S. Lee, S. Lee, S. Joo, S. H. Song, E. Kim, J. C. Lee, H. C. Kim, Y. Jung, S. Kwon “A Rapid Antimicrobial Susceptibility Test Based on Single -Cell Morphological Analysis”, *Science Translational Medicine* , 6, 267, 2014
2. J. Kim, S. E. Chung, S. Choi, H. Lee, J. Kim, and S. Kwon, “Programming Magnetic Anisotropy In Polymeric Microactuators”, *Nature Materials*, Vol. 9, 2011
3. Hyoki Kim, Jianping Ge, Junhoi Kim, Sung Eun Choi, Hosuk Lee, Howon Lee, Wook Park, Yadong Yin and Sunghoon Kwon, “ Structural color printing using a magnetically tunable and lithographically fixble photonic crystal” , *Nature Photonics*, 2009 [Research highlight at Nature Asia Materials]
4. S. E. Chung, J. Kim, D. Y. Oh, Y. Song, S. H. Lee, S. Min & S. Kwon “One -step pipetting and assembly of encoded chemical-laden microparticles for high-throughput multiplexed bioassays”, *Nature Communications* 5, 3468, 2014
5. Sungsik Kim, Amos Chungwon Lee, Han-Byoel Lee, Jinhyun Kim, Yushin Jung, Han Suk Ryu, Yongju Lee, Sangwook Bae, Minju Lee, Kyungmin Lee, Ryong Nam Kim, Woong-Yang Park, Wonshik Han and Sunghoon Kwon, "PHLI-seq: constructing and visualizing cancer genomic maps in 3D by phenotype-based high-throughput laser-aided isolation and sequencing", *Genome Biology*, 19:158